

II B.Tech I Semester Supplementary Examinations, November 2006
INSTRUMENTATION COMPONENTS
(Common to Electronics & Instrumentation Engineering and Electronics & Control Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Describe in detail about v and timing belt drives.
(b) Mention the uses of V belt and timing belt drives. [8+8]
2. (a) What are the guidelines in the selection of safety relief value?
(b) Explain factors are to be considered in fixing the and design of safety relief value. [6+5+5]
3. (a) With neat diagrams explain the working of a synchro transmit receive system.
(b) Mention major applications of synchro system. [10+6]
4. (a) Discriminate between ordinary electric motors and Servo motors.
(b) Briefly explain the working of D.C and A.C servomotors with neat sketches. [6+10]
5. (a) Explain the difference between transition capacitance and diffusion capacitance of a pn junction diode.
(b) Sketch the characteristics of ideal and practical diodes and explain them.
(c) Define the dynamic resistance of pn diode and explain how and why it varies with current and temperature. Give the typical value of dynamic resistance both for Si and Ge diodes. [2+6+8]
6. (a) With the help of functional diagram and circuit diagram explain the monostable operation of 555 timer.
(b) Derive the expression for time delay of a monostable multivibrator. [10+6]
7. (a) What is the essential difference between principle of operation of normal p-n diode and a LED.
(b) Describe the working principle of light emitting diode with neat diagram.
(c) Draw the schematic representation of an optocoupler and explain its working principle. [4+6+6]
8. (a) Discuss the spectral transmittance characteristics of an absorption filter.
(b) What are the parameters to be observed in the design of grating.
(c) Give two types of mounting of grating and explain the importance of mount in the grating. [6+4+6]
